Partner Reported Opportunities (PROs)
For Reducing Methane Emissions

Use Inert Gases & Pigs to Perform Pipeline Purges

Compressors/Engines ☐
Dehydrators ☐
Pipelines ■
Pneumatics/Controls ☐
Tanks ☐
Valves ☐
Wells ☐
Other ☐

Applicable sector(s):

☐ Production ■ Processing ■ Transmission and Distribution

Partners reporting this PRO: Southern Natural Gas Co.

Other related PROs: Use Clockspring Repair, Inject Blowdown Gas into Low Pressure Mains, Install Ejector, Pipeline Pumpdown Techniques

Technology/Practice Overview

Description

When pipeline segments are taken out of service for operational or maintenance purposes, it is common practice to depressurize the pipeline and vent the natural gas to the atmosphere. To prevent these emissions, partners have reported using pigs and inert gas to purge pipelines.

In implementing this practice, a pig is inserted into the isolated section of pipeline. Inert gas is then pumped in behind the pig, which pushes natural gas through to the product line. At the appropriate shut off point, the pig is caught in a pig trap and the pipeline blocked off. Once the pipeline is "gas-free" the inert gas is vented to the atmosphere.

Methane Savings

90 Mcf/yr

Costs

Capital Costs (including installation)
None

Operating and Maintenance Costs (Annual)
☐ < $100 ■ $100-$1,000 ☐ > $1,000

Payback (Years)

☐ 0-1 ☐ 1-3 ☐ 3-10 ■ > 10

Principal Benefits

Reducing methane emissions was:

☐ **A primary justification for the project** ■ **An associated benefit of the project**

Operating Requirements

Requires existing pig-launch and pig trap facilities and a mobile nitrogen supply.

Applicability

This practice applies to all pipeline segments that are being taken out of service for operational or maintenance purposes.

Methane Emission Reductions

The amount of avoided methane emissions is a function of the pipeline diameter, length and pressure. Based on the "Pipeline Rules of Thumb" handbook, Fourth Edition, p. 270, the amount of gas saved by the unit of application is 90 Mcf/yr. One partner reported avoiding 538 Mcf of methane for 6 purges by using pigs and inert gas.

Economic Analysis

Basis for Costs and Savings

Methane emission reductions of 90 Mcf/yr apply to purging 2 miles of 10-inch diameter pipeline with nitrogen at 280 psi pressure, once per year.

Discussion

Safety, not methane savings, is the primary reason for using pigs and inert gas to purge pipelines. The economics of this PRO are based on nitrogen at $5 per Mcf up to 50 miles from the source to the pipeline location and 2 operators working 8 hrs each (labor rate of $25/hr). There is no capital equipment required.